

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A mechanical fuse comprising:
a driving portion to which rotating force is transmitted;
a driven portion to which the rotating force is transmitted from the driving portion; and
a rupture portion which transmits the rotating force from the driving portion to the driven portion and is broken when a rotating force is loaded thereto;
wherein the rupture portion is composed of Fe-based sintered alloy, and the roundness of pores of the Fe-based sintered alloy is 0.004 or more ~~so that the fatigue limit ratio determined by (fatigue strength)/(tensile strength) is 0.35 or more~~, wherein at least one of Ni, Cu, Mo, Cr, and Mn is contained in a total amount of 0.7 to 5 mass %, and the C content in overall composition is 0.1 to 0.7 mass %.
2. (Canceled)
3. (Previously Presented) The mechanical fuse according to claim 1, wherein an iron oxide phase is formed in a surface layer and pore inner wall.
4. (Canceled)
5. (Previously Presented) The mechanical fuse according to claim 1, wherein a treatment for providing residual compressive stress is applied.
6. (Previously Presented) The mechanical fuse according to claim 5, wherein the treatment for providing residual compressive stress is shot peening.
7. (Previously Presented) A mechanical fuse composed of Fe-based sintered alloy, wherein the roundness of pores of the Fe-based sintered alloy is 0.004 or more, wherein

a treatment for providing residual compressive stress is applied, and the treatment for providing residual compressive stress is mechanical plating.

8. (Previously Presented) The mechanical fuse according to claim 1, wherein a soft nitriding treatment is applied.

9. (Previously Presented) A mechanical fuse composed of Fe-based sintered alloy, wherein the roundness of pores of the Fe-based sintered alloy is 0.004 or more, and a zinc chromate film is coated on the surface.

10. (Previously Presented) The mechanical fuse according to claim 1, composed of Fe-based sintered alloy, wherein this mechanical fuse is interposed between two power transmission shafts and comprises an inner rim fixed to one power transmission shaft, an outer rim fixed to the other power transmission shaft, and plural arms for linking the inner rim and outer rim, which are formed integrally.

11-16. (Canceled)

17. (Previously Presented) The mechanical fuse according to claim 1, wherein the driving portion, the driven portion, and the rupture portion are formed integrally.

18. (New) The mechanical fuse according to claim 1, wherein the mechanical fuse has a fatigue limit ratio determined by (fatigue strength)/(tensile strength) of 0.35 or more.

19. (New) The mechanical fuse according to claim 1, wherein the mechanical fuse has a fatigue limit ratio determined by (fatigue strength)/(tensile strength) of 0.35 to 0.53.